Quarterly Progress Report
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Near-Term Objectives

1) Review and comment on proposed changes to MODIS data products 2) Deliver Science Compute Facility plan 3) Participate in SeaWiFS science team activities 4) Develop ocean color white paper in the context of the planned 20-year time series of ocean color measurements 5) Hire Information Management specialist 6) Continue development of data visualization software.

Task Progress

1) MODIS Data Products

In addition to revising the draft data flow documents that have been developed by the MODIS project, I presented

2) Science Compute Facility

3) SeaWiFS Science Team Activities

I attended the first SeaWiFS science team meeting. I participated in discussions on the role of the DAAC on SeaWiFS data distribution and on the nature of science software development and distribution. There is considerable nervousness in the community regarding the level of service that will be provided by the DAAC. In general, the DAAC appears ready to provide only minimal service which will not meet the minimum requirements of the scientific community. In particular, the area of data subsetting appears to be the most contentious. In the area of software development, the SeaWiFS project is relying heavily on SEAPAK, a NASA/GSFC product. I suggested that the project focus on only a couple of

the most popular UNIX platforms, rather than try to service all brands of UNIX workstations. In addition, the project and NASA Headquarters needs to set realistic goals for SEAPAK. Initially, it should be a package for manipulation and analysis of standard SeaWiFS products, not generalized data processing.

4) Ocean Color White Paper

A draft of the complete report was presented at the SeaWiFS science team meeting in Annapolis. Comments were solicited and will be incorporated into the next draft. The ocean color science community is strongly supportive of the goal of a 20-year time series of 1 km resolution ocean color data collected on a global basis. There is concern that this goal will be difficult to achieve given our dependence on an array of foreign and U.S. sensors. Although the technical problems are challenging, more concern was expressed about the managerial/political problems.

5) Hiring of Information Manager

This process has taken far longer than expected. Our best candidates have not accepted the position. We have re-opened the search and will continue until we are successful.

6) Software Development

We beta-tested the latest version of Explorer from Silicon Graphics. Although this version is much improved, it is still missing some key functional elements. Process control is not intuitive, but methods for reading in new data formats is much better. However, it is still geared towards animation and rendering, which is only part of the data visualization problem. We have transitioned from PV-Wave (Visual Numerics, Inc.) to IDL (Research Systems, Inc.) in part because of the poor performance of PV-Wave and because IDL is working on links with AVS, a powerful 3D graphics package that is similar to Explorer. IDL is planning on routines to handle HDF (Hierarchical Data Format) data, which is the standard for Version 0. We acquired documentation on HDF.

Anticipated Activities

1) MODIS Data Products

I will continue to revise the data dependency charts being produced by the MODIS project. I expect that the IWG will begin a serious effort to define

MODIS data products. Part of the process will be the development of Algorithm Theoretical Basis Documents (ATBD) for each product. Initial portions of this material has been developed for my data products.

3) Software Development

We will work with Research Systems, Inc. on linking AVS and IDL. We have AVS on the new CM-5 from Thinking Machines. We will continue to work with this product as part of our data visualization strategy. We are beta-testing new IDL software for the Macintosh and for widget construction

I expect to complete hiring of a new data person, who will focus on advanced information management techniques, including object-oriented data management. This person will work on methods to handle multiple data types, as well as techniques for linking the data visualization process with data management.

4) Science Compute Facility

We are working with Hewlett-Packard on new methods of data retrieval and storage in collaboration with Dr. Berrien Moore (University of New Hampshire). We are also beginning a joint project with the Naval Research Lab on advanced networking (specifically ATM protocols) to support SeaWiFS data retrieval, processing, and analysis. This work is being done in collaboration with Dr. Robert Evans and Dr. Otis Brown (University of Miami).

Problems/Corrective Actions

One problem has been the continuing difficulty in locating a suitable data management person. This should be solved in the next few weeks; I have received applications from several qualified individuals. We have also been hindered in our research by late delivery of FY93 funds from NASA/GSFC.